LYNCHBURG CITY COUNCIL
Agenda Item Summary

MEETING DATE: October 29, 2002, Work Session (Tour) **AGENDA ITEM NO.: 1**

CONSENT: **REGULAR: X** **CLOSED SESSION:** **(Confidential)**

ACTION: **INFORMATION: X**

ITEM TITLE: Tour of the Wastewater Treatment Plant Odor Control Facility

RECOMMENDATION: None

SUMMARY:
The Wastewater Treatment Plant (WWTP) Odor Control Facility was approved in 2000 after a 1997 process modification at the WWTP regularly contributed odors to the Tyreeanna and Pleasant Valley neighborhoods. Construction began in May 2001 and the odor control system is currently undergoing final testing prior to acceptance by the City. A description of the odor control process and a diagram showing the part of the Plant affected by this project are attached. **Please remember to wear comfortable closed toe shoes for this tour.**

PRIOR ACTION(S): April, 2000: City Council approval of City Budget including this project.

FISCAL IMPACT:

Design, and Inspection	$ 436,000
Construction	$2,400,000
Projected Yearly Operation and Maintenance	$ 250,000

CONTACT(S):

Stephen Bontrager	Utilities Director	847-1322
Alvin Rucker	Wastewater Plant Superintendent	847-1634
Bruce McNabb	Public Works Director	847-1362

ATTACHMENT(S):

Description of the Odor Control Process
Diagram of the Wastewater Plant

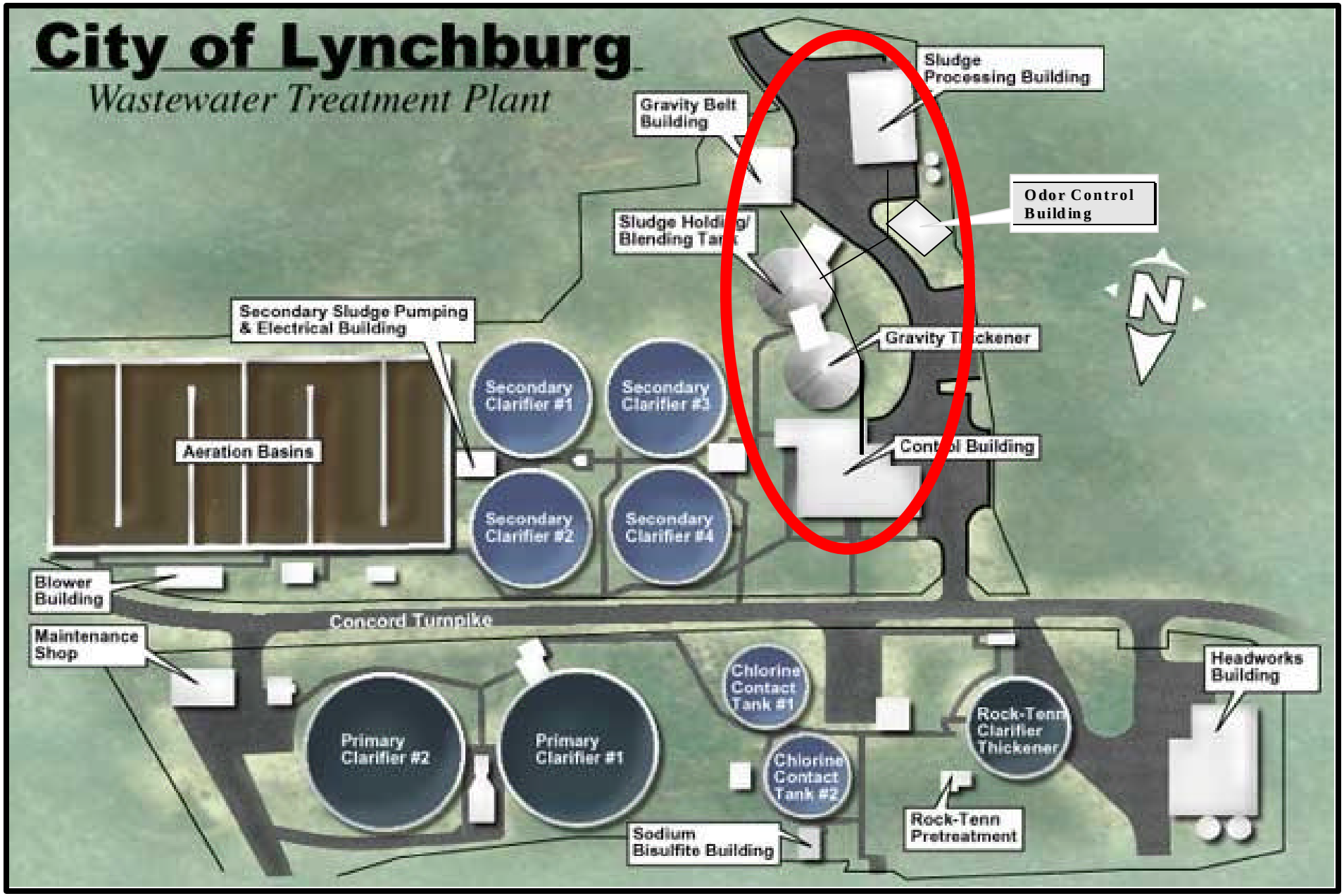
REVIEWED BY: lkp

Description of the Odor Control Process

In July 2002 the Lynchburg Regional Wastewater Treatment Plant (WWTP) started performance testing of the odor control system. The odor control system is dedicated to the solids handling facilities. The odor system was designed to treat hydrogen sulfide (rotten egg) and ammonia type odors. There are other odors that occur in the solids handling process that the new system will only marginally remove. Also the odor control facility is less effective when the bay doors are opened to remove bins of collected sludge or insert bins to collect sludge. Other areas of the WWTP do not have odor control facilities such as the primary clarifiers, aeration basins and secondary clarifiers. These areas historically generate less offensive odors and can be best controlled by good operational practices. There are also no odor control facilities at the landfill for disposal of the sludge.

The odor control system consists of 2 major parts 1) the collection system (fans, dampers and ductwork) and 2) the treatment system (scrubbers and chemical supply system). Foul air is collected from 6 areas of the plant: recycle collection box, gravity thickener, thickener vault, sludge holding tank, gravity belt thickener, and sludge stabilization building. The foul air is removed at a rate of 40,000 cubic feet per minute (equivalent to removing the air from a typical house in 20-25 seconds). 50 hp fans blow the foul air into one of two packed bed scrubbers. As it travels through the scrubber foul air is sprayed with 3 chemical scrubbing solutions in different chambers (stages).

The first stage, sulfuric acid (low pH), removes ammonia type odors. The second stage uses caustic soda for removal of 70-80% of the sulfides. The third stage uses sodium hyperchlorite and caustic soda for removal of the remaining sulfides. Chemical and physical reactions within the chamber transfer aerosols and vapors (odor causing compounds) to the scrubbing liquid. The scrubbed air is discharged to the atmosphere. Spent scrubbing liquid is returned to the head of the wastewater plant for treatment.



Area in red oval indicates part of plant with odor control..